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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,598	12/22/2003	Robert W. Olsen	P-11209.03	7573
27581	7590	03/29/2006	EXAMINER	
MEDTRONIC, INC. 710 MEDTRONIC PARK MINNEAPOLIS, MN 55432-9924			DEAK, LESLIE R	
			ART UNIT	PAPER NUMBER
			3761	

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,598

Applicant(s)

OLSEN ET AL.

Examiner

Leslie R. Deak

Art Unit

3761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 1-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 51-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/04, 2/05, 5/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 1-50 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 26 January 2006.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 51-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,960,322 to Stringer et al in view of US 4,607,520 to Dam.

In the specification and figures, Stringer discloses the apparatus substantially as claimed by applicant. In particular, Stringer discloses an extracorporeal blood oxygenation system with an air removal device. The assembly includes extracorporeal blood circuit 10 that carries deoxygenated venous blood from the patient to blood processing component 31, and returns oxygenated blood via arterial return line 12 (see column 4, lines 35-60). Blood processing component includes an air removal device comprising a housing 40, with a lower blood manifold 47 and an upper chamber 50. The housing comprises upper blood inlet 41 that connects to upper chamber 50, and a lower blood outlet 42. The device further comprises a gas outlet or purge port 46 and upper air sensors 37, supported by housing 40, across the upper chamber from one another

(see FIG 3). Stringer discloses that the sensors may work by conventional acoustic methods (see column 6, lines 60-67).

Stringer fails to disclose that the device comprises third and fourth sensors and that the sensors are piezoelectric elements. However, Dam discloses a bubble detector for detecting air in flow lines comprising ultrasonic transducers 22, 24 comprising a suitable piezoelectric material and an electrode. The transducer 22 receives bursts of electrical energy that is received by receiving transducer 24 to detect air bubbles in the flow line (see column 2, lines 20-60). The combination of ultrasonic signals and piezoelectric transducers allows for rapid and reliable signal processing to quickly determine if there is air in the flow line. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use piezoelectric elements as disclosed by Dam as the air sensors in the Stringer device to ensure rapid and reliable air bubble detection, as taught by Dam. •

With regard to applicant's claimed third and fourth piezoelectric elements, it would have been obvious to one having ordinary skill in the art at the time of invention to add a second set of sensors to the device disclosed by Stringer, since it has been held that there mere duplication of the essential working parts of a device involves only routine skill in the art. See MPEP § 2144.04.

Applicant claims that the elements are disposed in slots in the housing. It would have been a matter of obvious design choice to place the sensor elements in slots, since applicant has not disclosed that the slot placement solves any stated problem or is for any particular purpose, and it appears that the invention would perform equally

Art Unit: 3761

well with sensors that are merely mounted to the housing, as disclosed by Stringer. See MPEP § 2144.03.

Applicant claims the specific dimensions and placement of the piezoelectric elements within the device. Dam specifically discloses that the size of the transducers determine the size of the bubble that can be detected. Dam also discloses that bubbles are detected between the transducers, indicating that their placement within a system is critical to the location in which the bubbles are detected (see column 1, lines 60-67, column 2, lines 61-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the dimensions and positions of the sensor elements to those claimed by applicant, since it has been held that discovering an optimum value of a result-effective variable (such as size and location of the sensors) involves only routine skill in the art. See MPEP § 2144.05.

Applicant uses “adapted to” language throughout the claims in an attempt to claim structural limitations. However, the recitation that an element is “adapted to” perform a function is not a positive limitation, but only requires the ability to so perform. It does not constitute a positive structural limitation. See MPEP § 2106.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a. US 6,524,267 Gremel et al
- i. Blood filter with integrated air sensor

Art Unit: 3761

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leslie R. Deak whose telephone number is 571-272-4943. The examiner can normally be reached on M-F 7:30-5:00, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tanya Zalukaeva can be reached on 571-272-1115. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Leslie R. Deak', with a long horizontal flourish extending to the right.

Leslie R. Deak
Patent Examiner
Art Unit 3761
22 March 2006